



The National Center for Post-Traumatic Stress Disorder

PTSD RESEARCH QUARTERLY

VOLUME 13, NUMBER 3

ISSN 1050-1835

SUMMER 2002

Published by:

The National Center for PTSD
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TRAUMA EXPOSURE AND PTSD IN PEOPLE WITH SEVERE MENTAL ILLNESS

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There is growing evidence suggesting that persons with severe mental illness (SMI) are at sharply elevated risk for trauma exposure and for the development of PTSD. However, despite almost two decades of published reports and clinical concern, the intersection between traumatic life-events, PTSD, and other severe and persistent mental illnesses (such as schizophrenia or bipolar disorder) remains unclear. Although recent research is beginning to address and clarify these issues, important questions remain regarding such basic issues as: the magnitude of the association between SMI, trauma exposure, and PTSD; the underlying mechanisms of this association; and implications for the treatment of clients with these comorbidities.

Multiple models have been put forth to account for the observed high rates of PTSD in the SMI population. Early traumatic life events may be risk factors for the development of both major depressive disorder and PTSD. SMI may increase the likelihood of trauma exposure through associated correlates like homelessness and substance abuse. In addition, the existence of another major mental illness may increase vulnerability to the development of PTSD at any given level of trauma exposure. Research to date supports the likely contribution of all three of these mechanisms. Several other contributory factors, both real and artifactual, have also been suggested. For example, psychosis may itself represent a Criterion A trauma. In terms of artificially elevated correlation, the potential symptom overlap between depression and PTSD, or schizophrenia and PTSD, may conflate the apparent rates of PTSD in those diagnostic groups (Franklin & Zimmerman, 2001; Priebe et al., 1998). Alternatively, PTSD associated with psychotic symptoms may be misdiagnosed as a primary psychotic disorder (Hamner et al., 2000).

Severe mental illness. People with SMI comprise almost 3% of the U.S. population. These individuals are typically long-term, high utilizers of publicly funded mental health services, including inpatient, emergency, and community support. Primary DSM-

IV diagnostic groups comprising the SMI category include schizophrenia, schizoaffective disorder, bipolar disorder, and major depression. In addition to diagnostic criteria, the SMI designation also involves chronicity (typically 12-24 months or more, as determined by individual states) and impairments in functioning (e.g., the ability to work). Until the 1960s and '70s, SMI clients were often treated with long-term care in state psychiatric hospitals. Now, deinstitutionalization, the development of anti-psychotic medications, and the availability of community support programs allow most SMI clients to have long periods of community tenure. Unfortunately, SMI clients are now vulnerable to multiple risks and co-morbid illnesses in the community, including high rates of poverty, housing instability, homelessness, substance use disorder, blood-borne infections such as HIV, and exposure to violent victimization and PTSD.

Rates of trauma exposure and PTSD in the SMI population have not been adequately determined because of nosologic, psychometric, and sampling issues. For example, early reports on trauma and PTSD in the context of serious mental illness focused on samples that may not have been entirely comprised of SMI as defined above. Some early studies assessed heterogeneous samples of psychiatric inpatients, or emergency-room utilizers, who may not have met diagnostic, severity, or chronicity criteria. Other studies of the SMI population only assessed a limited set of possible Criterion A traumas, and most did not employ the CAPS or other "gold standard" assessments for diagnosing PTSD. Prior research suffers from additional limitations, including small sample sizes and single-site studies (for reviews, see Goodman et al., 1997 and Mueser et al., 2002). Since almost all of the studies on this topic have looked at populations in treatment, it is reasonable to hypothesize that the high rates of PTSD in those seeking psychiatric care for other disorders are partially due to "Berkson's bias," or the tendency of people with multiple disorders to seek care more often than those with a single diagnosis, resulting in higher rates of comorbidity in treatment samples than in population samples.

Psychometric and differential diagnostic issues. The validity of people's accounts of traumatic events has

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been a topic of much controversy, especially in the case of reports by adults of childhood sexual abuse. Even greater concern pertains to the reports of persons with SMI, whose disorder may result in psychotic distortions or delusions with themes involving sexual or physical abuse. While the accuracy of reports of victimization is difficult to ascertain, the reliability (or consistency) of reports over time can be more easily determined. Two recent studies have demonstrated similar levels of test-retest reliability of standardized trauma self-report measures in SMI samples as compared to non-SMI respondents (Goodman et al., 1999; Mueser et al., 2001). A third study, using a mixed diagnostic group of psychiatric outpatients (including clients with schizophrenia and bipolar disorder), also found good internal and test-retest reliability of a self-report trauma exposure measure (Nijenhuis et al., 2002).

Two recent studies have also evaluated the reliability and validity of PTSD assessments in clients with SMI. Goodman et al. (1999) showed that the internal reliability and the test-retest reliability of client self-reports of PTSD symptom severity over two weeks were high. Mueser et al. (2001) assessed structured clinical interviews for the diagnosis of PTSD in clients with SMI and demonstrated high internal reliability, high inter-rater reliability, moderate test-retest reliability over two weeks, and moderate convergent validity with self-report measures. When more stringent PTSD severity criteria for the CAPS were employed to define a PTSD case, the test-retest reliability increased substantially. These studies indicate that reliable and valid assessments of trauma exposure and PTSD can be conducted in clients with SMI.

Emerging evidence about high rates of trauma exposure and PTSD in persons with SMI. Despite the previously mentioned methodologic concerns, there is growing evidence that persons with SMI are at elevated risk for trauma exposure. Violent victimization is particularly endemic in this group, with women suffering high rates of sexual assault and men being exposed to high levels of physical assault. Between 34% and 53% of clients with SMI report childhood sexual or physical abuse, and 43% to 81% report some type of victimization over the course of their lives (Coverdale & Turbott, 2000; Goodman et al., 1997; Mueser et al., 1998). Since none of these studies was longitudinal, it is not possible to accurately determine whether victimization preceded or followed other symptoms of psychiatric disorder, or to estimate the etiologic implications of this high level of trauma exposure.

It does appear that elevated exposure to violent victimization is ongoing for SMI patients, even long after their primary mental illness has been diagnosed and treated. In a recent large multi-site study of SMI clients, Goodman et al. (2001) found that over one-third of all women participants, and almost 37% of male respondents, had been either sexually or physically assaulted in the last year alone. More than 20% of the women reported a sexual assault in the previous 12 months, and 80% reported either physical or sexual assault in adulthood.

PTSD in clients with SMI. Given the rate of exposure to

multiple, toxic forms of trauma, it is not surprising that the available research on the SMI population also reveals extremely elevated rates of PTSD. Eight studies, using samples that consisted either primarily or exclusively of clients with SMI, have examined the prevalence of PTSD in this population. Seven of these studies, sampling clients at various stages of illness, reported rates of current PTSD ranging between 28% and 43%, (e.g., Mueser et al., 1998; McFarlane et al., 2001; and Switzer et al., 1999). Moreover, rates of current PTSD in the SMI population far exceed the 9.2% prevalence of lifetime PTSD in the general population (Breslau et al., 1998).

Interestingly, the eighth study, which was of first admissions for psychosis, reported a PTSD rate of 14% (Neria et al., 2002). This study also showed a more standard gender bias in regards to PTSD, with women showing double the rate of men. These data suggest the effects of chronicity of psychiatric disorder on the development of PTSD, an effect that may be strong enough to obviate gender-related vulnerability over time.

Although sampling frames and assessment techniques varied, several important general findings emerge across these studies. First, as in the general population, PTSD severity in clients with SMI is related to severity of trauma exposure, number of traumatic events, and childhood victimization. Second, rates of PTSD vary significantly across diagnostic groups, with major depression showing the highest rate of co-morbidity, and schizophrenia the lowest. Clients with bipolar and schizoaffective disorders appear to suffer an intermediate rate of co-morbid PTSD. Third, in contrast to studies of non-clinical populations, there tend to be few or no gender differences in risk for PTSD in the SMI population. Fourth, co-morbid PTSD diagnoses were rarely noted in the psychiatric record, although VA providers were more likely to detect PTSD.

Possible mechanisms underlying co-morbidity of PTSD and SMI. There appear to be multiple factors contributing to the high rates of trauma exposure in people with SMI. Not only is psychopathology itself a risk factor for violent victimization, but people with SMI are at elevated risk for assault because they are likely to be in other high-risk categories as well. These include poverty, housing instability and homelessness, substance use disorders, prior victimization, and engaging in other risky behaviors, such as sex trading. Less well documented, but intuitively obvious, risk factors for violent victimization in this population include impairments in social judgment and the effects of stigma. The available evidence also suggests that a sub-set of people with SMI are caught up, at least episodically, in a "cycle of violence," in which they alternately play the roles of victim and perpetrator (Hiday et al., 2001).

There is a small but growing literature, articulated by such investigators as McGorry et al. (1991) and Shaw et al. (1997; 2002), asserting that psychotic illness itself (often characterized by perceptual disturbances, frightening delusions, feelings of persecution, and other threats to the self), can have the force of a Criterion A trauma (Shaw et al., 2002). This concept represents a modification of the tradi-

tional PTSD paradigm, which specifies that the traumatic stressor is an external event. Perhaps less controversial is the observation that the events surrounding the early stages of major psychiatric illness, such as involuntary admission, may themselves constitute Criterion A events (Frame & Morrison, 2001; Priebe et al., 1998). Psychiatric admissions often include law enforcement personnel, and may entail the use of restraints and seclusion, coerced treatment, and exposure to other people in the throes of acute psychotic illness (Frueh et al., 2000; Meyer et al., 1999). Such events can evoke an extreme sense of threat to one's physical integrity, and be accompanied by feelings of fear, helplessness, and horror. These evaluations may be heightened because clients are already in a state of crisis, coping resources have already been overwhelmed, and standard social supports are likely to be absent or reduced. For many clients, fear of or actual assault by other clients is the major trauma associated with commitment to inpatient care.

Aside from the possible artifacts of Berkson's bias and symptom overlap, co-morbidity may work to increase the high rates of PTSD in the SMI population in a number of ways. There is an extensive literature documenting the high rate of co-morbidity between PTSD, depression, and substance use disorder (e.g., Keane & Kaloupek, 1997). For example, depression appears to be a risk factor for the development of PTSD following trauma exposure. Supporting this idea is the finding that clients with major depression have the highest rate of comorbid PTSD of any SMI subgroup. It may also be that there is a common biological vulnerability to the development of both disorders.

In addition, trauma exposure and PTSD are risk factors for substance abuse, and substance abuse may be a risk factor for trauma exposure (Keane & Kaloupek, 1997). Clients across diagnostic groups are likely to exhibit worse functioning, commit acts that involve them with law enforcement, and seek acute-care services when they are abusing alcohol or drugs. Thus, the high prevalence of PTSD in treatment samples of SMI may be due to these comorbidities, the "vicious cycles" associated with them, and their effects on illness chronicity and severity.

The high rates of PTSD in clients with SMI are consistent with their increased exposure to trauma, but also suggest an elevated risk for developing PTSD given exposure to a traumatic event compared with the risk in the general population. For example, Breslau et al. (1998) reported that the prevalence of PTSD due to a person's most upsetting trauma was 13.6%, far lower than the prevalence of PTSD due to traumatic events in the SMI sample (e.g., across 6 studies reviewed by Mueser et al., 2002, 47% of the clients exposed to trauma had PTSD). It is consistent with other research showing that the presence of a mental illness increases a person's chance of developing PTSD following exposure to a traumatic event.

Correlates of trauma and PTSD in the SMI population. Traumatic experiences in clients with SMI are related to both the severity of psychiatric symptoms and increased

use of acute-care services. A history of trauma in clients with SMI is related to more severe symptoms, such as hallucinations and delusions, depression, suicidality, anxiety, hostility, and dissociation (Goodman et al., 1997). Consistent with the relationship between trauma and symptom severity in clients with SMI, exposure to interpersonal violence is correlated with worse psychosocial functioning, more frequent hospitalizations, longer time spent in the hospital, and more emergency-room calls (Goodman et al., 2001). Furthermore, similar to trauma, PTSD is related to worse functioning in clients with SMI, including more severe psychiatric symptoms, poor health, and higher rates of psychiatric and medical hospitalization (Switzer et al., 1999; Mueser et al., in press).

Treatment considerations. The high rate of PTSD in people with SMI, and its correlation with reduced functioning, suggest the need to develop effective treatments for this comorbid condition. However, there are currently no empirically validated treatments designed for clients with comorbid PTSD (Rosenberg et al., 2001). While some interventions for trauma in clients with SMI have been recently proposed, most of these models do not directly address PTSD, and have not yet been assessed through controlled research. However, efforts are beginning to test both group and individual treatment models to address PTSD and other post-traumatic symptoms in SMI clients. Harris and colleagues, for example, have been conducting open trials of post-traumatic care for women with both SMI and abuse histories (1998), and other researchers have been investigating the use of Najavits' (1998) "Seeking Safety" model with this group.

Building on evidence from controlled studies in the general population that CBT is effective in reducing or eliminating symptoms of PTSD, Mueser, Rosenberg, and Friedman have begun a randomized clinical trial of a cognitive behavioral intervention for PTSD clients with SMI. Because exposure therapy and cognitive restructuring (CR) appear to be equally effective in reducing PTSD symptoms, there are a number of factors that would seem to favor CR for clients with SMI. These include the heightened sensitivity of clients with SMI to the effects of stress and the results of a series of controlled studies demonstrating that cognitive restructuring is effective at ameliorating psychotic symptoms in the SMI population.

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- KEANE, T.M. & KALOUPEK, D.G. (1997). **Comorbid psychiatric disorders in PTSD: Implications for research.** *Annals of the New York Academy of Sciences*, 821, 24-34.
- MCGORRY, P.D., CHANEN, A., MCCARTHY, E., VAN RIEL, R., MCKENZIE, D., & SINGH, B.S. (1991). **Posttraumatic stress**

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NAJAVITS, L.M., WEISS, R.D., SHAW, S.R., & MUENZ, L.R. (1998). **"Seeking Safety": Outcome of a new cognitive-behavioral psychotherapy for women with posttraumatic stress disorder and substance dependence.** *Journal of Traumatic Stress*, 11, 437-456.

NIJENHUIS, E.R.S., VAN DER HART, O., & KRUGER, K. (2002). **The psychometric characteristics of the Traumatic Experiences Checklist (TEC): First findings among psychiatric outpatients.** *Clinical Psychology and Psychotherapy*, 9, 200-210.

SELECTED ABSTRACTS

COVERDALE, J.H. & TURBOTT, S.H. (2000). **Sexual and physical abuse of chronically ill psychiatric outpatients compared with a matched sample of medical outpatients.** *Journal of Nervous and Mental Disease*, 11, 440-445. Because there are few controlled studies, we aimed to determine the prevalence of sexual and physical abuse reported by psychiatric outpatients compared with matched controls. The sample consisted of 158 outpatients with major mental disorders including schizophrenia and bipolar disorder who responded to a semi-structured interview (response rate = 64.8%) and who were individually matched for gender, age, and ethnicity with 158 outpatients who had never been treated for psychiatric illness. They answered questions about whether and when they had ever been sexually or physically abused, and about the type and circumstances of abuse. Abuse was more common during adulthood (16 years or older); 45 psychiatric patients (28.5%) were sexually abused and 43 (27.3%) were physically abused. Compared with the controls, patients were significantly more likely to report a history of sexual or physical abuse during adulthood ($\chi^2 = 5.15$, $df = 1$, $p = .02$; $\chi^2 = 4.09$, $df = 1$, $p = .04$ respectively). During adulthood, female patients were significantly more likely to be sexually and physically abused than male patients, and those sexually abused were significantly more likely to report a history of sexual abuse during childhood. However, patients were not significantly more likely to report a history of sexual or physical abuse during childhood compared with the controls. These findings demonstrate that psychiatrically ill patients are vulnerable to sexual and physical abuse during adulthood and underscore psychiatrists' responsibility to routinely inquire about abuse experiences.

FRAME, L. & MORRISON, A.P. (2001). **Causes of posttraumatic stress disorder in psychotic patients.** *Archives of General Psychiatry*, 58, 305-306. We hypothesized that there would be a high rate of PTSD among those hospitalized after a psychotic episode, that the experience of hospitalization and psychotic symptoms would both make significant contributions to the prediction of PTSD symptoms after hospitalization for acute psychosis, and that there would be a high incidence of other traumas in 60 adults (37 men and 23 women; all had schizophrenia spectrum disorders) admitted to a psychiatric ward after an acute psychotic episode. Hierarchical regression analyses revealed that the experience of psychotic symptoms in particular (as well as hospitalization) made a substantial contribution to the traumatization of the sample. These results clearly have implications for the assessment and treatment of acute psychosis; in particular, it is possible that interventions developed for PTSD

may be applicable to the reduction of distress in patients with a psychotic disorder. [Adapted from Text]

FRANKLIN, C.L. & ZIMMERMAN, M. (2001). **Posttraumatic stress disorder and major depressive disorder: Investigating the role of overlapping symptoms in diagnostic comorbidity.** *Journal of Nervous and Mental Disease*, 189, 548-551. Studies of PTSD have found high levels of comorbid major depressive disorder (MDD). One reason suggested for the comorbidity is the symptom overlap (contaminated symptoms) between the disorders. The present study investigated the contribution of contaminated symptoms (anhedonia, concentration, and sleep problems) to the comorbidity of PTSD and MDD. PTSD symptoms were subdivided into two groups: the contaminated symptoms and the 14 unique symptoms. It was speculated that if the contaminated symptoms are responsible for the comorbidity, then they will show less specificity than the unique symptoms, will be less highly correlated with a PTSD symptom total count, and be more frequently endorsed in PTSD patients with than without MDD. These hypotheses were tested in a sample ($N = 1300$) of psychiatric outpatients, 260 of whom had lifetime PTSD. None of the hypotheses were supported, thereby suggesting that the comorbidity between PTSD and MDD is not an artifact of symptom overlap.

FRUEH, B.C., DALTON, M.E., JOHNSON, M.R., HIERS, T.G., GOLD, P.B., MAGRUDER, K.M., & SANTOS, A.B. (2000). **Trauma within the psychiatric setting: Conceptual framework, research directions, and policy implications.** *Administration and Policy in Mental Health*, 28, 147-154. Our purpose here is to review and critique the literature on trauma occurring within the psychiatric setting, present several illustrative case-reports, suggest a conceptual framework, propose a research agenda to increase our understanding of this important issue, and address implications for mental health administration and policy. There is a striking lack of empirical data regarding the prevalence, perceptions, and consequence of potentially traumatic or harmful events occurring within the psychiatric setting, as well as on prevention efforts. It seems incumbent upon mental health service providers to make an extra effort to ensure that services delivered within psychiatric settings (i.e., sanctuary) are delivered in a manner that is most sensitive to the potentially adverse consequences of traumatic, frightening, or humiliating (i.e., harmful) experiences. [Adapted from Text]

GOODMAN, L.A., THOMPSON, K.M., WEINFURT, K., CORL, S., ACKER, P., MUESER, K.T., & ROSENBERG, S.D. (1999). **Reliability of reports of violent victimization and posttraumatic stress disorder among men and women with serious mental illness.** *Journal of Traumatic Stress*, 12, 587-599. Although violent victimization is highly prevalent among men and women with serious mental illness (SMI; eg., schizophrenia, bipolar disorder), future research in this area may be impeded by controversy, concerning the ability of individuals with SMI to report traumatic events reliably. This article presents the results of a study exploring the temporal consistency of reports of childhood sexual abuse, adult sexual abuse, and adult physical abuse, as well as current symptoms of PTSD among 50 people with SMI. Results show that trauma history and PTSD assessments can, for the most part, yield reliable information essential to further research in this area. The study also demonstrates the importance of using a variety of statistical methods to assess the reliability of self-reports of trauma history.

GOODMAN, L.A., ROSENBERG, S.D., MUESER, K.T., & DRAKE, R.E. (1997). **Physical and sexual assault history in women with serious mental illness: Prevalence, correlates, treatment and future research directions.** *Schizophrenia Bulletin*, 23, 685-696. An emerging body of research on the physical and sexual abuse of seriously mentally ill (SMI) women documents a high incidence and prevalence of victimization within this population. While causal links are not well understood, there is convergent evidence that victimization of SMI women is associated with increased symptom levels, HIV-related risk behaviors, and such comorbid conditions as homelessness and substance abuse. These abuse correlates may influence chronicity, service utilization patterns, and treatment alliance. This article reviews the research literature on the prevalence, symptomatic and behavioural correlates, and treatment of abuse among SMI women, particularly women with schizophrenia. Within each topic, we discuss relevant research findings, limitations of available studies, and key questions that remain unanswered. We also discuss mechanisms that may underlie the relationship between trauma and schizophrenia-spectrum disorders. We conclude by outlining directions for future research in this area.

GOODMAN, L.A., SALYERS, M.P., MUESER, K.T., ROSENBERG, S.D., SWARTZ, M., ESSOCK, S.M., OSHER, F.C., BUTTERFIELD, M.I., & SWANSON, J. (2001). **Recent victimization in women and men with severe mental illness: Prevalence and correlates.** *Journal of Traumatic Stress*, 14, 615-632. The problem of violence against individuals with severe mental illness (SMI) has received relatively little notice, despite several studies suggesting an exceptionally high prevalence of victimization in this population. This paper describes the results of an investigation of the prevalence and correlates of past year physical and sexual assault among a large sample of women and men with SMI drawn from inpatient and outpatient settings across 4 states. Results confirmed preliminary findings of a high prevalence of victimization in this population (with sexual abuse more prevalent for women and physical abuse more prevalent for men), and indicated the existence of a range of correlates of recent victimization, including demographic factors and living circumstances, history of childhood abuse, and psychiatric illness severity and substance abuse. The research and clinical implications of these findings are discussed.

HAMNER, M.B., FRUEH, B.C., ULMER, H.G., HUBER, M.G., TWOMEY, T.J., TYSON, C., & ARANA, G.W. (2000). **Psychotic features in chronic posttraumatic stress disorder and schizophrenia.** *Journal of Nervous and Mental Disease*, 188, 217-221. Psychotic features are frequent in combat veterans with chronic PTSD, may correlate with severity of PTSD symptoms, and may reflect a distinct subtype of the disorder. These psychotic features include auditory and visual hallucinations and delusional thinking that is usually paranoid in nature. Psychotic features may be under-recognized in chronic PTSD because patients are reluctant to report these symptoms and because they may not have overt changes in affect or bizarre delusions characteristic of other psychoses, e.g., schizophrenia. To further assess these phenomena, we compared clinical ratings on the Positive and Negative Syndrome Scale (PANSS) and other assessments, including the Clinical Global Impression Scale and the Structured Clinical Interview with Psychotic Screen, in veterans meeting DSM-IV criteria for chronic PTSD with well-defined comorbid psychotic features ($N = 40$) or chronic schizophrenia ($N = 40$). The patients with schizophrenia had modestly higher composite PANSS scores and positive symptom scores although average scores in both

groups were moderate to severe in intensity. Negative symptom and general psychopathology subscale scores were comparable in both groups. Regarding specific positive symptoms, hallucinations were comparable between groups in severity; however, schizophrenia patients had slightly more intense delusions and conceptual disorganization. These data further validate the occurrence of positive as well as negative symptoms of psychosis in chronic PTSD in a range of severity that may approach that of patients with schizophrenia. Although meeting DSM-IV criteria for two different major psychiatric disorders, these two patient populations were remarkably similar with respect to not only positive but also negative symptoms.

HARRIS, M., & THE COMMUNITY CONNECTIONS TRAUMA WORK GROUP. (1998). *Trauma recovery and empowerment: A clinician's guide for working with women in groups*. New York: The Free Press. The trauma recovery approach that we have developed is based on four core assumptions: (1) Some of the current dysfunctional behaviors and/or symptoms may have originated as legitimate coping responses to trauma. (2) Women who experienced repeated trauma in childhood were deprived of the opportunity to develop certain skills necessary for adult coping. (3) Trauma severs core connections to one's family, one's community, and ultimately to oneself. (4) Women who have been abused repeatedly feel powerless and unable to advocate for themselves. Building upon these assumptions, we have developed a model of recovery that includes the following elements: (1) Basic education about physical and sexual abuse and how current behaviors are linked to past abuses. (2) A reframing of current symptoms as attempts to cope with unbearable trauma. (3) An appreciation of the problem-solving attempts locked and hidden in certain repetitive behaviors. (4) Education focusing on basic skills in self-regulation, boundary maintenance, and communication. (5) Basic education about female sexuality, correcting misperceptions and misconceptions. (6) Creation of a healing community by providing recovery services within a group format. (7) Rediscovery of and reconnection to lost memories, feelings, and perceptions. (8) An opportunity for women to experience a sense of competence and resolution as they face the demons from the past. (9) An opportunity for women to trust their own perceptions about reality and to receive validation from others for those correct perceptions. [Adapted from Text]

HIDAY, V.A., SWANSON, J.W., SWARTZ, M.S., BORUM, R., & WAGNER, H.R. (2001). **Victimization: A link between mental illness and violence?** *International Journal of Law and Psychiatry*, 24, 559-572. We investigated victimization as a possible link between violence and mental illness among a sample of persons with severe mental illness who were involuntarily hospitalized and ordered to outpatient commitment. Our sample had an average rate of nonviolent criminal victimization but a high rate of violent criminal victimization compared to the rates in the general population. Half of our sample was violent as measured by being picked up or arrested for assault, being in a physical fight, or threatening another with a weapon in the previous 4 months. As predicted, criminal victimization was significantly related to being violent not only in the bivariate analysis but also in the multivariate analysis that controlled common predictors of both. The relationship, thus, appears not to be spurious. No demographic variable other than age was significantly associated with violence; however, the interaction of African American racial status and victimization was significant: it was only African Americans who were crime victims who had an elevated risk of

violence. Perhaps it is a path through victimization that could explain the link between race and violence among persons with severe mental disorders reported in some studies.

MCFARLANE, A.C., BOOKLESS, C., & AIR, T. (2001). **Post-traumatic stress disorder in a general psychiatric inpatient population.** *Journal of Traumatic Stress, 14*, 633-645. This study examined the incidence of traumatic experiences and prevalence of lifetime PTSD in a sample of 141 general hospital psychiatric inpatients. 61% of the patients reported at least one traumatic event during their lifetime and 28% met the formal DSM-III-R criteria for a lifetime diagnosis of PTSD. A high degree of comorbidity between PTSD and other psychiatric disorders was found, but PTSD was the incident disorder in at least 50% of cases. The experience of trauma and its associated complex patterns of symptomatology suggest that PTSD complicates the process of recovery from another disorder.

MEYER, H., TAIMIMEN, T., VUORI, T., ÄIJALÄ, Ä., & HELENIUS, H. (1999). **Posttraumatic stress disorder symptoms related to psychosis and acute involuntary hospitalization in schizophrenic and delusional patients.** *Journal of Nervous and Mental Disease, 187*, 343-352. The aims of this study were: (a) to assess the prevalence of PTSD after an acute psychotic episode in schizophrenic and delusional patients, (b) to explore which psychotic symptoms and aspects of treatment were associated with traumatization, and (c) to compare the extent of traumatic impact of psychosis and involuntary hospitalization. 46 schizophrenic and delusional patients were assessed with the Positive and Negative Syndrome Scale (PANSS), the Impact of Event Scale-Revised (IES-R), and the Clinician Administered PTSD Scale (CAPS) at weeks 1 and 8 after acute psychiatric admission. Traumatic symptoms related to psychosis and coercive measures were scored separately. The prevalence of PTSD was found to be 11%. 69% of traumatic symptoms were related to psychosis and 24% to hospitalization. High PANSS score at week 8 was the strongest risk factor for the development of PTSD. Particularly positive and depressive/anxious symptomatology were associated with psychosis-related traumatic symptoms at both weeks 1 and 8. These data suggest that, in general, schizophrenic and delusional symptoms are more traumatic than the coercive measures used to control them.

MUESER, K.T., GOODMAN, L.B., TRUMBETTA, S.L., ROSENBERG, S.D., OSHER, F.C., VIDAVER, R., AUCIELLO, P., & FOY, D.W. (1998). **Trauma and posttraumatic stress disorder in severe mental illness.** *Journal of Consulting and Clinical Psychology, 66*, 493-499. This research assessed the lifetime prevalence of traumatic events and current PTSD in 275 patients with severe mental illness (e.g., schizophrenia and bipolar disorder) receiving public mental health services in Concord and Manchester, New Hampshire, and Baltimore, Maryland. Lifetime exposure to traumatic events was high, with 98% of the sample reporting exposure to at least 1 traumatic event. The rate of PTSD in our sample was 43%, but only 3 of 119 patients with PTSD (2%) had this diagnosis in their charts. PTSD was predicted most strongly by the number of different types of trauma, followed by childhood sexual abuse. The findings suggest that PTSD is a common comorbid disorder in severe mental illness that is frequently overlooked in mental health settings.

MUESER, K.T., ROSENBERG, S.D., GOODMAN, L.A., & TRUMBETTA, S.L. (2002). **Trauma, PTSD, and the course of severe mental illness: An interactive model.** *Schizophrenia Research, 53*, 123-143. Traumatic life events, as defined by DSM-

IV, are common among persons with severe mental illnesses (SMI) such as schizophrenia. Limited evidence suggests concomitantly high rates of PTSD in this population. However, conceptual models do not exist for understanding the interactions between trauma, PTSD, and SMI. We propose a model, which is an extension of the stress-vulnerability model, in which PTSD is hypothesized to mediate the negative effects of trauma on the course of SMI. Our model posits that PTSD influences psychiatric disorders both directly, through the effects of specific PTSD symptoms including avoidance, overarousal, and re-experiencing the trauma, and indirectly, through the effects of common correlates of PTSD such as retraumatization, substance abuse, and difficulties with interpersonal relationships. We discuss the evidence supporting this model, and consider several intervening variables that are hypothesized to moderate the proposed relationships between PTSD and SMI, including social support, coping and competence, and antisocial personality disorder. Theoretical and clinical implications of the model are considered, as well as several methodological and nosological issues. We conclude with a brief discussion of directions for future research aimed at evaluating components of the model.

MUESER, K.T., SALYERS, M.P., ROSENBERG, S.D., FORD, J.D., FOX, L., & CARTY, P. (2001). **Psychometric evaluation of trauma and posttraumatic stress disorder assessments in persons with severe mental illness.** *Psychological Assessment, 13*, 110-117. Interrater reliability, internal consistency, test-retest reliability, and convergent validity were examined for the Trauma History Questionnaire (THQ), the Clinician-Administered Posttraumatic Stress Disorder (PTSD) Scale (CAPS), and the PTSD Checklist (PCL) in 30 clients with severe mental illnesses. Interrater reliability for the THQ and CAPS was high, as was internal consistency of CAPS and PCL subscales. The test-retest reliability of the THQ was moderate to high for different traumas. PTSD diagnoses on the CAPS and PCL showed moderate test-retest reliability. Lower levels of test-retest reliability for PTSD diagnoses were related to psychosis diagnoses and symptoms. However, when more stringent criteria for PTSD were used on the CAPS, it had excellent test-retest reliability across all clients. CAPS and PCL diagnoses of PTSD showed moderate convergent validity. The results support the reliability of trauma and PTSD assessments in clients with severe mental illness.

MUESER, K.T., SALYERS, M.P., ROSENBERG, S.D., GOODMAN, L.A., ESSOCK, S.M., OSHER, F.C., SWARTZ, M.S., BUTTERFIELD, M., & THE 5 SITE HEALTH AND RISK STUDY RESEARCH COMMITTEE. (in press). **Interpersonal trauma and posttraumatic stress disorder in patients with severe mental illness: Demographic, clinical, and health correlates.** *Schizophrenia Research. Purpose:* To evaluate the prevalence and correlates of PTSD in persons with severe mental illness. *Method:* Standardized assessments of interpersonal trauma and PTSD were conducted in 782 patients with severe mental illness receiving services in one of five inpatient and outpatient treatment settings. Analyses examined the prevalence of PTSD, and demographic, clinical, and health correlates of PTSD diagnosis. *Results:* The overall rate of current PTSD in the sample was 34.8%. For demographic characteristics, the prevalence of PTSD was higher in patients who were younger, white, homeless, and unemployed. For clinical and health variables, PTSD was more common in patients with major affective disorders (compared to schizophrenia-spectrum disorders), alcohol use disorder, more recent psychiatric hospitalizations, more health problems, more visits to doctors for health problems, and more non-psychiatric hospitalizations over the past year. *Conclusions:* The results support prior research docu-

menting the high rates of PTSD in patients with severe mental illness and suggest that PTSD may contribute to substance abuse, psychiatric and medical comorbidity, and increased psychiatric and health service utilization.

NERIA, Y., BROMET, E.J., SIEVERS, S., LAVELLE, J., & FOCHTMANN, L.J. (2002). **Trauma exposure and posttraumatic stress disorder in psychosis: Findings from a first-admission cohort.** *Journal of Consulting and Clinical Psychology*, 70, 246-251. This study examined the lifetime prevalence of trauma exposure and posttraumatic stress disorder (PTSD) and their demographic, diagnostic, and trauma-related correlates in a clinical cohort of 426 patients with a first psychiatric admission for psychosis. The prevalence of trauma exposure was 68.5%. Female gender and substance abuse were risk factors for trauma exposure. The prevalence of PTSD was 14.3% in the full sample and 26.5% in those with trauma exposure. PTSD was less prevalent in patients with bipolar disorder and schizophrenia and was twice as common in women. Other significant risk factors were younger age and trauma exposure that was repeated and ongoing or that involved childhood victimization. The findings highlight the importance of systematically ascertaining trauma histories in patients with psychotic disorders.

PRIEBE, S., BRÖKER, M., & GUNKEL, S. (1998). **Involuntary admission and posttraumatic stress disorder symptoms in schizophrenia patients.** *Comprehensive Psychiatry*, 39, 220-224. In a sample of 105 community-care patients suffering from schizophrenia, the relationship between reports of involuntary admission in the past, current PTSD symptoms, and other aspects of psychopathology was examined. PTSD symptoms were obtained on the PTSD interview, and psychopathology was rated on the Brief Psychiatric Rating Scale (BPRS) and on the Present State Examination (PSE). 57% of the patients reported they had experienced involuntary admissions in the past. The degree of PTSD symptoms was high — 51% fulfilled the criteria for a PTSD diagnosis. PTSD symptoms were not correlated with reports of involuntary admissions. They were, however, significantly correlated with the BPRS subscale anxiety/depression, and with PSE subscores for specific and nonspecific neurotic syndromes. Because of an overlap of symptom scores, a diagnosis of PTSD according to DSM criteria appears to be very difficult in schizophrenia patients.

ROSENBERG, S.D., MUESER, K.T., FRIEDMAN, M.J., GORMAN, P.G., DRAKE, R.E., VIDAVER, R.M., TORREY, W.C., & JANKOWSKI, M.K. (2001). **Developing effective treatments for posttraumatic disorders among people with severe mental illness: A review and proposal.** *Psychiatric Services*, 52, 1453-1461. *Objective:* The purpose of the study was to examine strategies for developing effective interventions for clients who have both serious mental illness and posttraumatic symptoms. *Methods:* The authors conducted searches for articles published between 1970 and 2000, using MEDLINE, PsycLIT, and PILOTS. They assessed current practices, interviewed consumers and providers, and examined published and unpublished documents from consumer groups and state mental health authorities. *Results and Conclusions:* Exposure to trauma, particularly violent victimization, is endemic among clients with severe mental illness. Multiple psychiatric and behavioral problems are associated with trauma, but PTSD is the most common and best-defined consequence of trauma. Mental health consumers and providers have expressed concerns about several trauma-related issues, including possible underdiagnosis of PTSD, misdiagnosis of other psychiatric disorders among trauma survivors, incidents

of retraumatization in the mental health treatment system, and inadequate treatment for trauma-related disorders. Despite consensus that trauma and PTSD symptoms should be routinely evaluated, valid assessment techniques are not generally used by mental health care providers. PTSD is often untreated among clients with serious mental illness, or it is treated with untested interventions. It is important that policy makers, service system administrators, and providers recognize the prevalence and impact of trauma in the lives of people with severe mental illness. The development of effective treatments for this population requires a rational, orderly process, beginning with the testing of theoretically grounded interventions in controlled clinical trials.

SHAW, K., MCFARLANE, A.C., & BOOKLESS, C. (1997). **The phenomenology of traumatic reactions to psychotic illness.** *Journal of Nervous and Mental Disease*, 185, 434-441. This study investigated whether a psychotic illness was associated with PTSD symptomatology in 45 subjects recovering from hospitalization for a psychotic episode. Previous studies have suggested that the experience of psychosis and hospitalization is distressing and that PTSD may be a useful paradigm for the psychological response. Subjects were given questionnaires to evaluate PTSD symptoms, anxiety symptoms, and distress and intrusive memories associated with aspects of treatment and psychosis. Treatment, especially experiences involving a loss of control such as detention, and psychotic symptoms, particularly persecutory delusions, passivity phenomena, and visual hallucinations, were perceived as highly distressing. 22 subjects (52%) met the criteria for a postpsychotic PTSD, with implications for recognition and management of secondary morbidity related to psychosis.

SHAW, K., MCFARLANE, A.C., BOOKLESS, C., & AIR, T. (2002). **The aetiology of postpsychotic posttraumatic stress disorder following a psychotic episode.** *Journal of Traumatic Stress*, 15, 39-47. This paper examines the aetiology of postpsychotic PTSD (PP/PTSD) symptoms in a sample of participants who had been hospitalized following a psychotic episode. 42 people hospitalized for a psychotic illness were interviewed during recovery to investigate whether a psychotic episode was associated with PTSD symptomatology. All participants found psychosis and hospitalization highly distressing. PP/PTSD symptoms were not associated with demographic factors, previous trauma, treatment, or insight. The PP/PTSD group reported more distress and intrusive memories associated with illness and treatment experiences and had higher scores for anxiety and dissociative symptoms. The development of PP/PTSD phenomenology was associated with the psychological distress of the experience.

SWITZER, G.E., DEW, M.A., THOMPSON, K., GOYCOOLEA, J.M., DERRICOTT, T., & MULLINS, S.D. (1999). **Posttraumatic stress disorder and service utilization among urban mental health center clients.** *Journal of Traumatic Stress*, 12, 25-39. Although the urban poor are at high risk for exposure to trauma, community mental health clinics rarely diagnose clients with PTSD. Failure to diagnose PTSD may undermine the effectiveness of services provided. Our objectives were to (1) assess prevalence of traumatic experiences and PTSD, and (2) examine differences in service utilization between those who had PTSD and those who did not. Interview data were gathered from 181 urban psychiatric outpatients. A substantial number of clients had experienced at least one lifetime trauma (94%), and of those, 42% had PTSD during the past year. Analyses comparing service use between PTSD and nonPTSD clients supported our expectation that clients with PTSD would use more mental health services, and would be less satisfied with services than their nonPTSD counterparts.

PILOTS UPDATE

The Internet is changing the environment for scientific communication in many ways. One of the most exciting of these is the development of the online journal. Many familiar print journals are now available online. When these simply replicate the content of the printed version, they pose no particular challenge to the bibliographer. In fact, by eliminating delays caused by printing and mailing, electronic distribution of print journals makes it possible for us to index their contents more quickly in the PILOTS database. We are often able to include indexing for the *Journal of Traumatic Stress* in our database well before ISTSS members receive their printed copies.

When journals are published only in electronic form, bibliographers must revise procedures that were designed with printed journals in mind. When no physical volume exists, and the appearance of an article on the computer screen depends more upon the reader's browser software than upon the publisher's intention, the use of page numbers to describe its location is not effective. When the text of an article is accompanied by audio or video files, provision must be made for acknowledging and describing them.

Printer's ink is permanent. Once an article is published in a traditional journal, it is an indelible part of the scientific record. Its content may be corrected in a subsequent issue; its arguments may be challenged in a letter to the editor; its findings may even be retracted should fraud or error come to light. A responsible bibliographer will record these annotations to the original; but that original will remain within the archive of science, and whatever faults or virtues it possesses will be known to future generations of researchers.

Paper is tangible and durable. Should a publisher cease to issue a journal, or a library to subscribe to it, the existing copies remain available for consultation. Printed journals may be transferred from reader to reader, from one library to another, without need to secure permission from the holder of the copyright to their contents.

The role of scientific publication in establishing prece-

dence and conferring authority depends upon its permanent availability and unalterability of content. But what happens when scientific journals can no longer guarantee this? What happens when an electronic journal ceases publication? How can access to its contents be ensured once its format becomes obsolete?

We are grappling with these issues as they affect the PILOTS database. We are committed to indexing the published traumatic stress literature. But how are we to define "published" in this new electronic age?

We have established some tentative guidelines for our own coverage of electronic journals:

- We will index only material that is "published" in the traditional sense of permanently preserving intellectual content. A journal whose content is subject to deletion or modification after initial dissemination cannot be regarded as an archival journal. Such a vehicle may serve a useful purpose in communication within the traumatic stress community, but it is not a part of the permanent record of science.
- We will index journals only when some provision has been made for permanent preservation of their content. This may take the form of a paper reprint, like that issued by the publishers of *Traumatology*, or of participation in some scheme for the archiving of their electronic content in a library or other repository committed to maintaining it in perpetuity. (If a journal is indexed in MEDLINE or PsycINFO, we will assume that adequate archival arrangements have been made. We will also undertake to index specialist journals in the traumatic stress field if their publishers will deposit permanent archives of their content in our PTSD Resource Center.)

We encourage anyone submitting a contribution to an electronic journal to investigate the arrangements its publishers have made for the permanent preservation of its contents and its coverage by abstracting and indexing services. And we encourage the publishers of electronic journals to work with us to enhance their role in communicating and archiving research into traumatic stress.

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